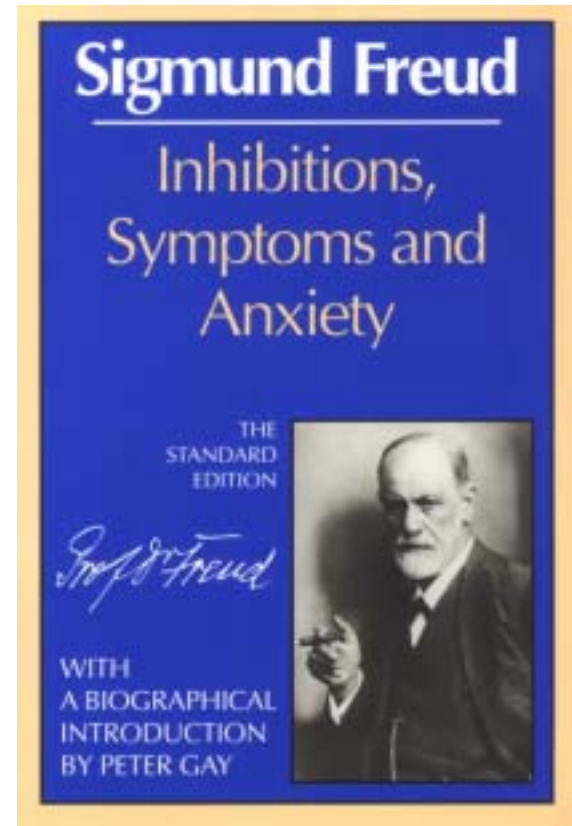


The New Trigger Inhibit System

Jonathan Lewis

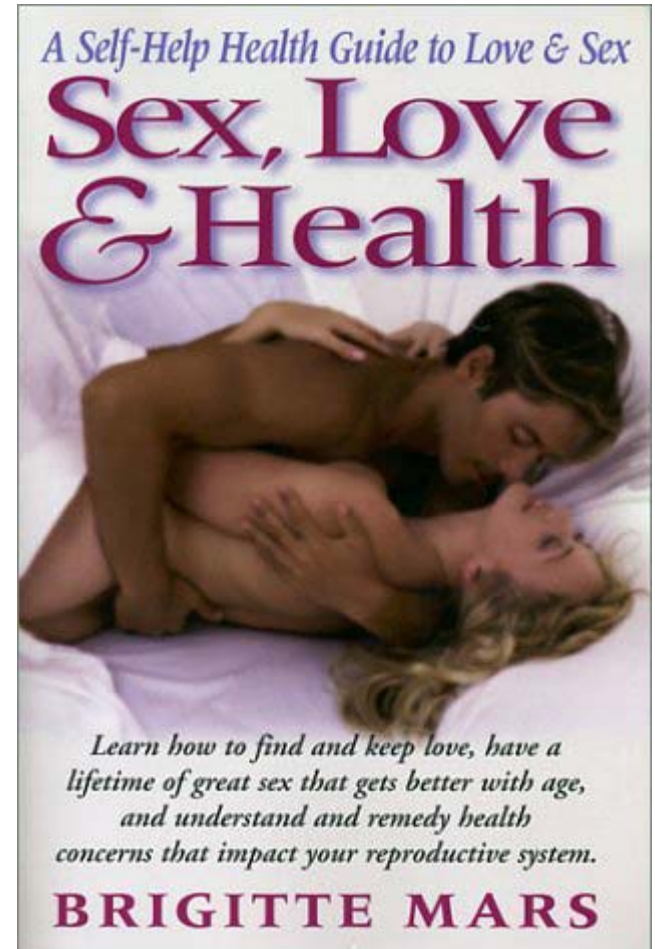
Ace Training

March 26 2004



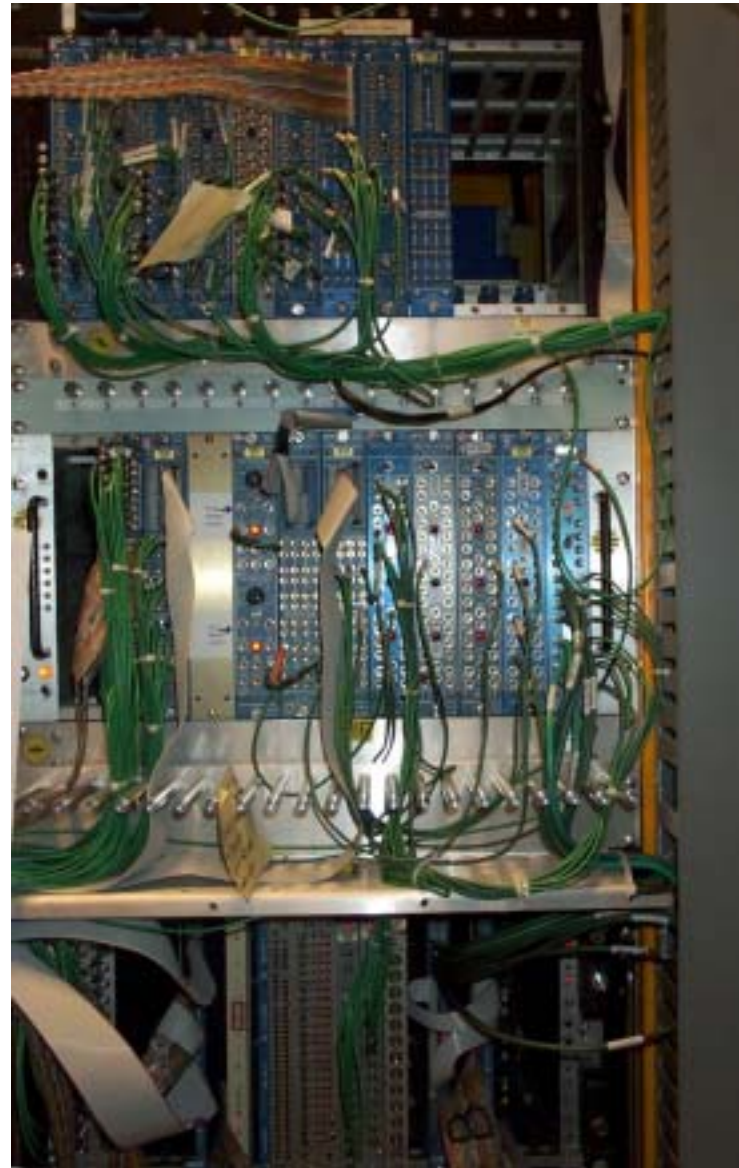
Why be Inhibited?

- Inhibit system insures good data
 - Stop taking triggers quickly and automatically when a problem is detected
 - Example: HV trip
 - Start as soon as detector is in Good state

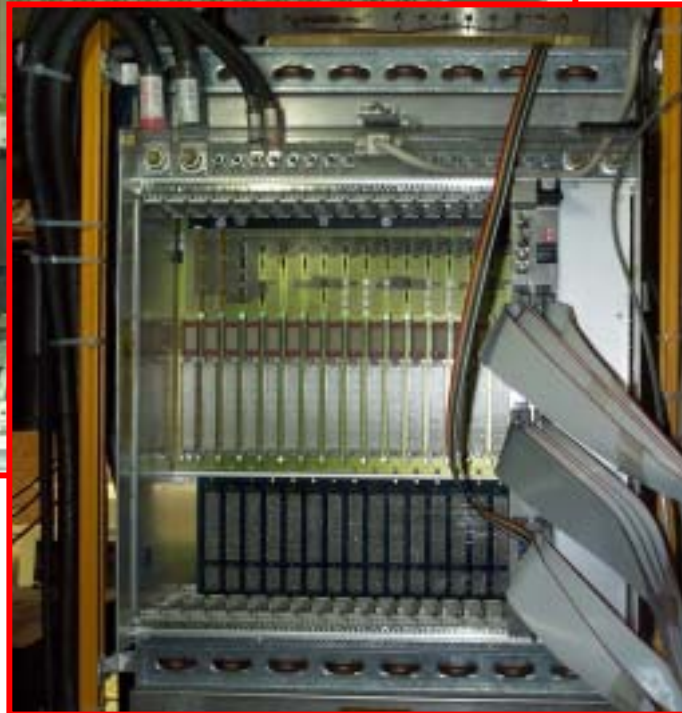
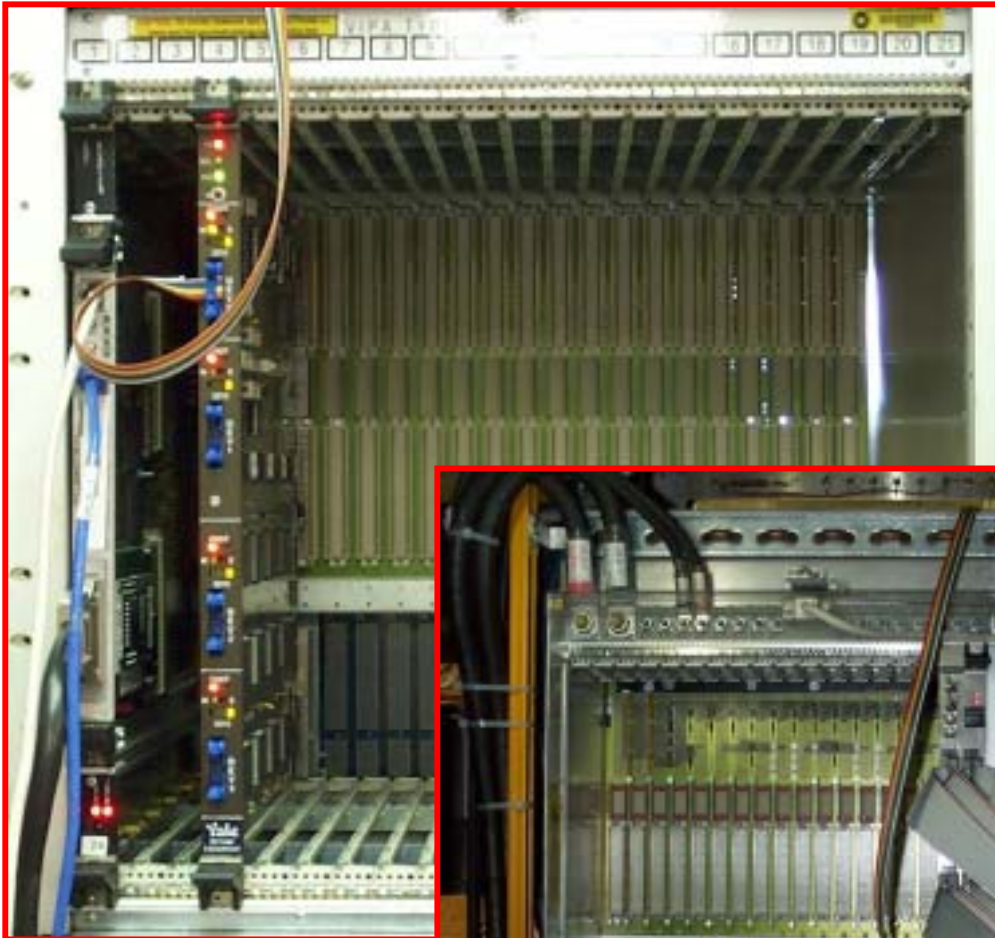


Out with the old

- **Three crates of NIM and Camac logic**
 - Familiar to old guys like me
 - Not so easy to maintain



In with the new



- **CDF Return XPT card**
 - New transition module
 - 160 inputs from patch panel in 1RR12D
 - Flexible!
 - Maintained by other people!!!!

Overview

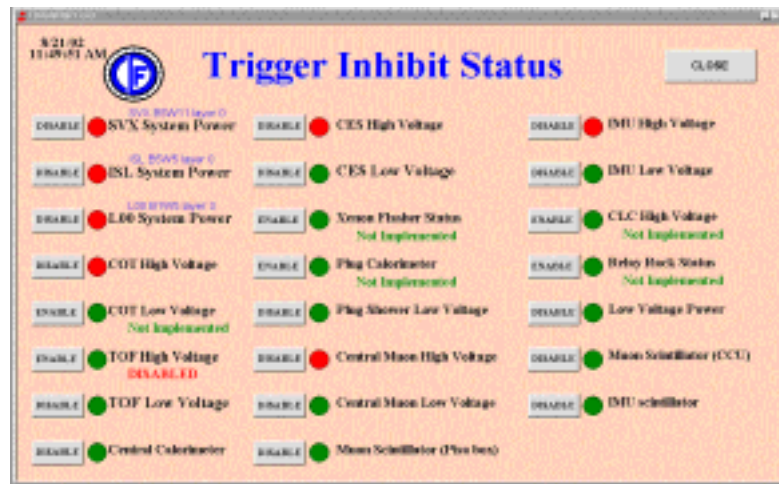
- **160 possible inputs**
 - Each can be masked in case of problems that can't be resolved quickly
 - **Masking means data are suspect**
- **Two classes of inputs:**
 - Signals from iFIX and slow-control PC
 - **Includes trips, but takes seconds(?) to reach inhibit**
 - **One signal per sub-system**
 - **Inhibit if not OK for data-taking**
 - Fast trip signals from power supplies
 - **1 signal per supply**
 - **msec time scale**
 - **minimize chance of corrupt data**
 - **Most common source of inhibit**

Operational Considerations

- **HV trips are most common source of inhibit**
 - Fast trip comes from power supply
 - PC then detects
 - Supply reset, but PC still holds inhibit during ramp
- **Different time scales**
 - Caen systems and COT have fast response
 - PSM (Low Voltage) polls many supplies
 - **Delayed response**
 - Still no software inhibit for CLC, CPR, CCR
 - **Need to PAUSE run on trips for these systems**
- **PC signals are new**
 - Used by a few systems.
- **Inhibits are for PHYSICS table runs with beam or COSMICS to tape**
 - Otherwise use the global disable in Run Control

Control Software

- GUI display above ace console
- One icon for each inhibit input
- Use GUI to control mask
 - Lock out changes when run is active in partition that has booked inhibit VME crate
- Don't use old mask function in iFix!!!
 - This page has been deleted



Inhibit Display

Not in partition

Current Time

Update time

Partition ID

CDF Inhibit Interface

Help

15-Jan-2004 09:56:21 15-Jan-2004 09:56:21 Partition : 1 Inhibitable Partition

TRIPSVX00	AIPU	TRIPSVX01	AIPU	TRIPSVX02	AIPU	TRIPSVX03	AIPU	TRIPSVX04	AIPU	TRIPSVX05	AIPU	TRIPSVX06	AIPU	TRIPSVX07	AIPU	TRIPSL00	AIPU
TRIPSL01	AIPU	TRIPSL02	AIPU	TRIPSL03	AIPU	TRIPSL04	AIPU	TRIPSL05	AIPU	TRIPSL06	AIPU	TRIPSL07	AIPU	TRIPPCAL00	AIPU	TRIPPCAL01	AIPU
TRIPPCAL02	AIPU	TRIPPCAL03	AIPU	TRIPPCAL04	AIPU	TRIPPCAL05	AIPU	TRIPPCAL06	AIPU	TRIPPCAL07	AIPU	TRIPPCAL08	AIPU	TRIPPCAL09	AIPU	TRIPPCAL10	AIPU
TRIPPCAL11	AIPU	TRIPCMU00	AIPU	TRIPCMU01	AIPU	TRIPCMU02	AIPU	TRIPCMU03	AIPU	TRIPCMU04	AIPU	TRIPCMU05	AIPU	TRIPCMU06	AIPU	TRIPCMU07	AIPU
PCMU HV	AIPU	PCMP HV	AIPU	PCMX HV	AIPU	PCMU HV	AIPU	PCMU CCU	AIPU	PCES HV	AIPU	PCSP CCU	AIPU	PCSP CSX	AIPU	TEV WIRE	AIPU
TRIPTOF01	AIPU	TRIPTOF02	AIPU	TRIPCLC00	AIPU	B FIELD	AIPU	TRIPCOT00	AIPU	TRIPCOT01	AIPU	TRIPCOT02	AIPU	TRIPCOT03	AIPU	TRIPCOT04	AIPU
TRIPCOT05	AIPU	TRIPCOT06	AIPU	TRIPCOT07	AIPU	PCOT HV	AIPU	IFXSXX HV	AIPU	IFXSEL HV	AIPU	IFXCOT HV	AIPU	IFXCOT LV	AIPU	IFXTOF HV	AIPU
IFXTOF LV	AIPU	IFXCENRAL HV	AIPU	IFXCES HV	AIPU	IFXCES LV	AIPU	IFXENON OFF	AIPU	IFXPLG HV	AIPU	IFXPES LV	AIPU	IFXCHU HV	AIPU	IFXMIJON LV	AIPU
IFXSP CSX	AIPU	IFXJMU HV	AIPU	IFXJMU LV	AIPU	IFXCLC HV	AIPU	IFXBACS	AIPU	IFXME POWER	AIPU	IFXSP CCU	AIPU	IFXJMU CCU	AIPU	IFXJMU	AIPU
IFXCMP HV	AIPU	IFXCMP HV	AIPU														

Masked by ace

Disabled

Good

Inhibited Channel

Operation

- **Partition**

- InhibitDisplay program checks if the partition owns b0inh00
- If so, masks inhibits for inputs not associated with components in the partition
 - These masks can't be changed in GUI
- Shift crew can now mask inhibits if we need to run with a **BAD** system

- **Run**

- Changes to mask are disabled

- **End**

- Changes to mask are allowed

Summary of iFix Signals

Channel	Tag	Computer
1	SVX_HV	svxiicon
2	ISL_HV	svxiicon
3	COT_HV	cot2
4	COT_LV	cot2
5	TOF_HV	tof1
6	TOF_LV	tof1
7	CENTRAL_HV	pisabox
8	CES_HV	muon3
9	CES_LV	voltman
10	XENON_OFF	pisabox
11	PLUG_HV	cdfepbv
12	PES_LV	voltman
13	MUON_HV	muon3
14	MUON_LV	voltman
15	CSP_CSX	cdfccu
16	IMU_HV	muon3
17	IMU_LV	voltman
18	CLC_HV	clc
19	RACKS	cdf_s3
20	VME_POWER	voltman
21	CSP_CCU	cdfccu
22	IMU_CCU	cdfccu
23	L00_HV	svxiicon

Response to Problems

- **Inhibit is a GIGO system**
 - **Detector experts responsible for inputs**
 - If you get an inhibit, and you don't understand why: **Call the detector experts!**
 - If you have a problem and you didn't get an inhibit, but you think you should: **Call the detector experts!**
 - If they think they are sending the correct info but the inhibit is behaving badly, call me.
- **If an inhibit is masked, the associated system will be considered BAD for that run.**
 - Masking an inhibit is a stop-gap measure while things are repaired.

Inject Humor

- **Run 1 CDF Anthem**
 - Melody Notre Dame fight song

Fight, fight, fight for old CDF.
What is the matter, have you gone deaf?
Hear the DecTalk calling thee:
"Event timeout on machine three."

Whether the gas-gain be green or red,
We will take data till we're dead.
While our pedestals go shift of to infinity.